Ecologically Significant Wetlands in the Upper Yellowstone River Watershed

including the Boulder, Clarks Fork Yellowstone, Shields, and Stillwater River Drainages

Prepared for the
Montana Department of Environmental Quality

By
W. Marc Jones

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MONTANA
Natural Heritage
Program

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Summary

The Montana Natural Heritage Program, in partnership with the Montana Department of Environmental Quality, has completed an inventory of ecologically significant wetlands in the watersheds of the upper Yellowstone River in south central Montana. This project identified high quality wetlands in the study area and evaluated their diversity and integrity. Building on previous watershed inventories, this work creates a consistent and comprehensive source of wetland information that can form the basis for effective prioritization of wetland protection and restoration efforts.

This inventory targeted wetlands with intact hydrological functions, representative native plant communities, outstanding wildlife values, and/or rare plant and animal species. Inventory priorities were also influenced by degree of threat. Therefore highly protected alpine wetlands in the Absaroka-Beartooth Wilderness Area and the proposed Line Creek Plateau Research Natural Area were not inventoried, despite the ecological importance of these wetlands. Instead, greater priority was placed on inventorying wetlands on private land because of the greater development potential at these sites. Important sources for locating significant wetlands were local expert opinion and aerial photographs.

We used standard Heritage Program methodologies to inventory wetlands and to assess site condition, catalog community types, and document rare plant and animal occurrences. Five criteria were used to evaluate each site's ecological significance: (1) condition, which includes degree of hydrologic or geomorphic alteration, quality of native plant communities, and presence of exotic species, (2) landscape context, which includes condition of uplands and hydrologic connectivity between wetland and uplands, (3) diversity, which includes the number of plant communities, structural vegetation types, and hydrologic classes, (4) rarity, which includes the number and condition of rare plants, animals, or communities, and (5) size of wetland. We then placed sites into one of four categories, ranging from highest quality (A-ranked) to poorest quality (D-ranked).

Forty-six ecologically significant wetlands were inventoried for this study. Of these sites, eight rated as A-ranked wetlands, 16 as B-ranked wetlands, 20 as C-ranked wetlands, and two sites were not ranked. A-ranked sites were relatively undisturbed to pristine. In general, their natural hydrologic regimes were intact, they supported high quality examples of native plant communities, and they had no or only minor weed populations. The uplands surrounding these sites were largely undisturbed, with minimal human alterations. These wetlands included diverse beaver-influenced wetlands and several poor fens, which are a regionally rare wetland type. In contrast, B-ranked sites had been impacted by both on- and off-site human disturbances, although many sites still maintained high functional capacity and supported high quality plant communities. This category included riverine and depressional montane wetlands along the Beartooth Front and low-elevation riverine and slope wetlands. Grove Creek Aspens, a unique spring-fed aspen stand in the arid Bighorn Basin, was included in this category. The remaining sites were rated as C-ranked wetlands. These wetlands have been functionally impaired through hydrologic or geomorphic alterations or through land use disturbances in the wetlands or adjacent uplands. Exotic species were widespread and abundant at many of these sites. In contrast, some of these wetlands were in good condition, but were comprised of a few common, structurally simple communities, and therefore had low diversity and rarity scores. C-ranked sites included low-elevation riverine wetlands as well as three large alkaline lake systems.

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